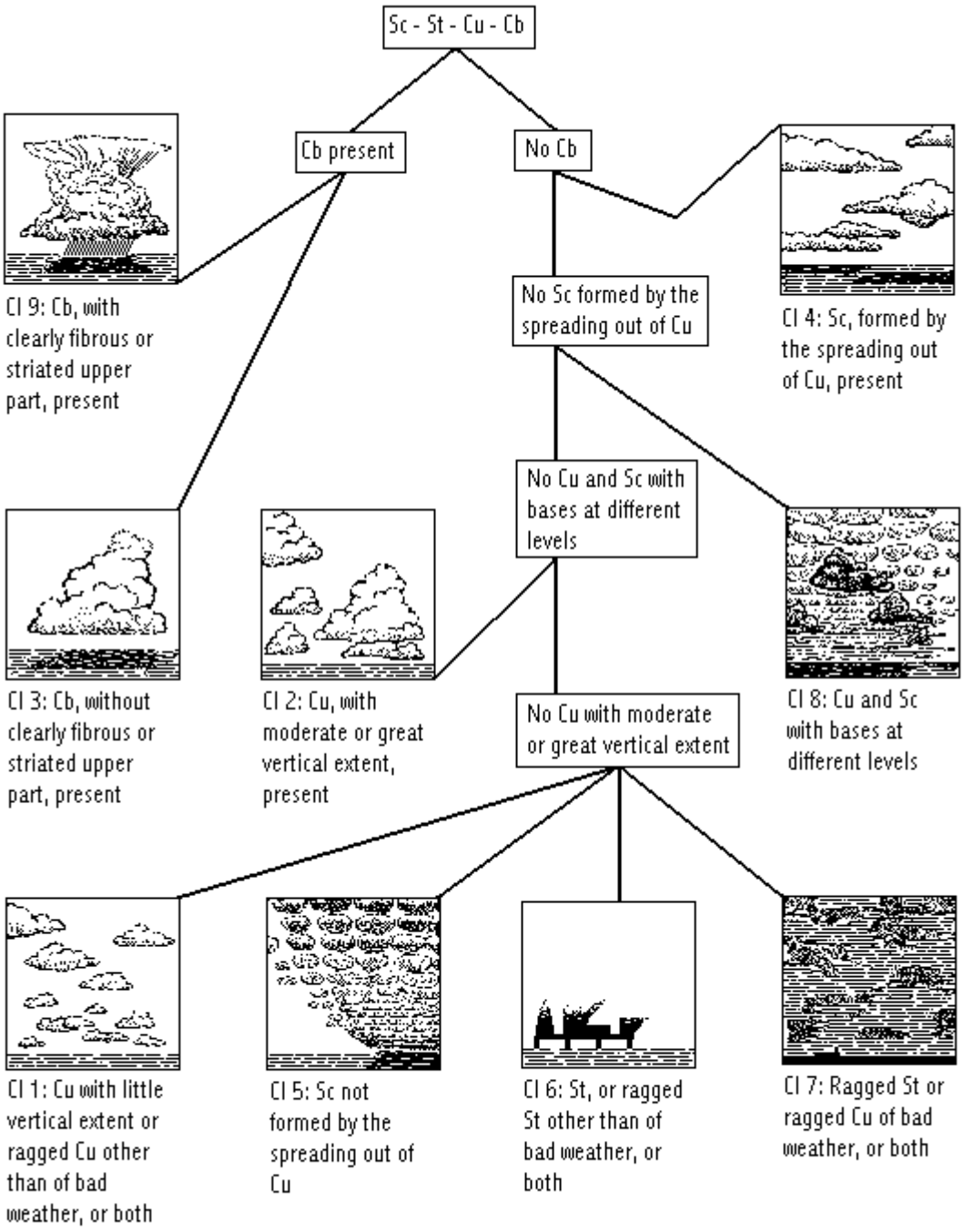
Cl pictorial guide



legend
Cb = Cumulonimbus*
Cu = Cumulus**
Sc = Stratocumulus***
St = Stratus****

*Heavy and dense cloud, with a considerable vertical extent, in the form of a mountain or huge towers. At least part of its upper portion is usually smooth, or fibrous or striated, and nearly always flattened; this part often spreads out in the shape of an anvil

or vast plume. Under the base of this cloud, which is often very dark, there are frequently low ragged clouds either merged with it or not, and precipitation sometimes in the form of virga.

**Detached clouds, generally dense and with sharp outlines, developing vertically in the form of rising mounds, domes or towers, of which the bulging upper part often resembles a cauliflower. The sunlit parts of these clouds are mostly brilliant white; their base is relatively dark and nearly horizontal. Sometimes Cumulus is ragged.

***Grey or whitish, or both grey and whitish, patch, sheet or layer of cloud which almost always has dark parts, composed of tessellations, rounded masses, rolls, etc., which are non-fibrous (except for virga) and which may or may be not be merged; most of the regularly arranged small elements have an apparent width of more than five degrees.

****Generally grey cloud layer with a fairly uniform base, which may give drizzle, ice prisms or snow grains. When the sun is visible through the cloud, its outline is clearly discernible. Stratus does not produce halo phenomena except, possibly, at very low temperatures. Sometimes Stratus appears in the form of ragged patches.

In order to find the correct code figure, the following procedure is used.

(a) Start from the box at the top of the diagram and follow one of the two lines leading out of this box.

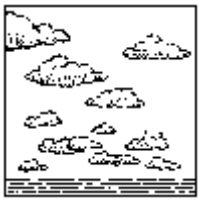
(b) Proceed from box to box as long as all successive boxes contain criteria which are applicable to the observed sky.

(c) When this procedure leads to a box with a criterion which is not applicable to the observed sky, go back to this previous box and follow the other line leading out of this box.

(d) If this line leads to a box, repeat the procedure described under (b) and (c). If the line leads to a picture, the code figure below this picture is the correct code to be reported.

(e) If all the successive boxes contain criteria which are applicable to the observed sky, the procedure will finally lead to a box from which two or more lines terminate in pictures. Read the criteria below these pictures to obtain the correct code figure.

Cl 1



Cumulus* with little vertical extent and seemingly flattened, or ragged. Cumulus other than of ‘Bad weather’**, or both.

*Detached clouds, generally dense and with sharp outlines, developing vertically in the form of rising mounds, domes or towers, of which the bulging upper part often resembles a cauliflower. The sunlit parts of these clouds are mostly brilliant white; their base is relatively dark and nearly horizontal. Sometimes Cumulus is ragged.

**Denotes the conditions which generally exist during precipitation and a short time before and after

Cl 2

Cumulus* of moderate or strong vertical extent, generally with protuberances in the form of domes or towers, either accompanied or not by other Cumulus or by Stratocumulus**, all having their bases at the same level. Well-developed clouds may sometimes give showers.

*Detached clouds, generally dense and with sharp outlines, developing vertically in the form of rising mounds, domes or towers, of which the bulging upper part often resembles a cauliflower. The sunlit parts of these clouds are mostly brilliant white; their base is relatively dark and nearly horizontal. Sometimes Cumulus is ragged.

**Grey or whitish, or both grey and whitish, patch, sheet or layer of cloud which almost always has dark parts, composed of tessellations, rounded masses, rolls, etc., which are non-fibrous (except for virga) and which may or may be not be merged; most of the regularly arranged small elements have an apparent width of more than five degrees.

Cl 3

Cumulonimbus* the summits of which, at least partially, lack sharp outlines but are neither clearly fibrous (cirriform) nor in the form of an anvil; Cumulus**, Stratocumulus*** or Stratus****, may also be present.

*Heavy and dense cloud, with a considerable vertical extent, in the form of a mountain or huge towers. At least part of its upper portion is usually smooth, or fibrous or striated, and nearly always flattened; this part often spreads out in the shape of an anvil or vast plume. Under the base of this cloud, which is often very dark, there are frequently low ragged clouds either merged with it or not, and precipitation sometimes in the form of virga.

**Detached clouds, generally dense and with sharp outlines, developing vertically in the form of rising mounds, domes or towers, of which the bulging upper part often resembles a cauliflower. The sunlit parts of these clouds are mostly brilliant white; their base is relatively dark and nearly horizontal. Sometimes Cumulus is ragged.

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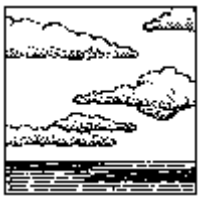
****Generally grey cloud layer with a fairly uniform base, which may give drizzle, ice prisms or snow grains. When the sun is visible through the cloud, its outline is clearly discernible. Stratus does not produce halo phenomena except, possibly, at very low temperatures. Sometimes Stratus appears in the form of ragged patches.

Cl 4



Stratocumulus* formed by the spreading out of Cumulus**; Cumulus may also be present.

*Grey or whitish, or both grey and whitish, patch, sheet or layer of cloud which almost always has dark parts, composed of tessellations, rounded masses, rolls, etc., which are non-fibrous (except for virga) and which may or may be not be merged; most of the regularly arranged small elements have an apparent width of more than five degrees.

**Detached clouds, generally dense and with sharp outlines, developing vertically in the form of rising mounds, domes or towers, of which the bulging upper part often resembles a cauliflower. The sunlit parts of these clouds are mostly brilliant white; their base is relatively dark and nearly horizontal. Sometimes Cumulus is ragged.

Cl 5

Stratocumulus* not resulting from the spreading out of Cumulus**.

*Grey or whitish, or both grey and whitish, patch, sheet or layer of cloud which almost always has dark parts, composed of tessellations, rounded masses, rolls, etc., which are non-fibrous (except for virga) and which may or may be not be merged; most of the regularly arranged small elements have an apparent width of more than five degrees.

**Detached clouds, generally dense and with sharp outlines, developing vertically in the form of rising mounds, domes or towers, of which the bulging upper part often resembles a cauliflower. The sunlit parts of these clouds are mostly brilliant white; their base is relatively dark and nearly horizontal. Sometimes Cumulus is ragged.

Cl 6

Stratus* in a more or less continuous sheet or layer, or in ragged shreds, or both, but no Stratus Fractus** of ‘Bad weather’***.

*Generally grey cloud layer with a fairly uniform base, which may give drizzle, ice prisms or snow grains. When the sun is visible through the cloud, its outline is clearly discernible. Stratus does not produce halo phenomena except, possibly, at very low temperatures. Sometimes Stratus appears in the form of ragged patches.

**Clouds in the form of irregular shreds, which have a clearly ragged appearance.

***Denotes the conditions which generally exist during precipitation and a short time before and after

Cl 7

Stratus* Fractus** of ‘Bad weather’*** or Cumulus**** fractus of bad weather, or both (Pannus*****), usually, below Altostratus****** or Nimbostratus*******.

*Generally grey cloud layer with a fairly uniform base, which may give drizzle, ice prisms or snow grains. When the sun is visible through the cloud, its outline is clearly discernible. Stratus does not produce halo phenomena except, possibly, at very low temperatures. Sometimes Stratus appears in the form of ragged patches.

**Clouds in the form of irregular shreds, which have a clearly ragged appearance.

***Denotes the conditions which generally exist during precipitation and a short time before and after

****Detached clouds, generally dense and with sharp outlines, developing vertically in the form of rising mounds, domes or towers, of which the bulging upper part often resembles a cauliflower. The sunlit parts of these clouds are mostly brilliant white; their base is relatively dark and nearly horizontal. Sometimes Cumulus is ragged.

*****Ragged shreds sometimes constituting a continuous layer, situated below another cloud and sometimes attached to it

******Greyish or bluish cloud sheet or layer of striated, fibrous, or uniform appearance, totally or partly covering the sky, and having parts thin enough to reveal the sun at least vaguely, as through ground glass. Altostratus does not show halo phenomena.

*******Grey cloud layer, often dark, the appearance of which is rendered diffuse by more or less continuously falling rain or snow, which in most cases reaches the ground. It is thick enough throughout to blot out the sun. Low, ragged clouds frequently occur below the layer, with which they may or may not merge.

Cl 8

Cumulus* and Stratocumulus** other than that formed from the spreading out of Cumulus; the base of the Cumulus is at a different level from that of the Stratocumulus.

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**Grey or whitish, or both grey and whitish, patch, sheet or layer of cloud which almost always has dark parts, composed of tessellations, rounded masses, rolls, etc., which are non-fibrous (except for virga) and which may or may be not be merged; most of the regularly arranged small elements have an apparent width of more than five degrees.

Cl 9

Cumulonimbus*, the upper part of which is clearly fibrous (cirriform), often in the form of an anvil; either accompanied or not by Cumulonimbus without anvil or fibrous upper part, by Cumulus**, Stratocumulus***, Stratus**** or Pannus*****.

*Heavy and dense cloud, with a considerable vertical extent, in the form of a mountain or huge towers. At least part of its upper portion is usually smooth, or fibrous or striated, and nearly always flattened; this part often spreads out in the shape of an anvil or vast plume. Under the base of this cloud, which is often very dark, there are frequently low ragged clouds either merged with it or not, and precipitation sometimes in the form of virga.

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*****Ragged shreds sometimes constituting a continuous layer, situated below another cloud, and sometimes attached to it.

Cumulonimbus

Heavy and dense cloud, with a considerable vertical extent, in the form of a mountain or huge towers. At least part of its upper portion is usually smooth, or fibrous or striated, and nearly always flattened; this part often spreads out in the shape of an anvil or vast plume. Under the base of this cloud, which is often very dark, there are frequently low ragged clouds either merged with it or not, and precipitation sometimes in the form of Virga*.

*Vertical or inclined trails of precipitation (fall streaks) attached to the under surface of a cloud, which do not reach the earth's surface.

Main differences between Cumulonimbus and similar clouds of other genera

(a) Nimbostratus

When Cumulonimbus covers a large expanse of the sky, it can easily be confused with Nimbostratus, especially when identification is based solely on the appearance of the under surface, in this case, the character of the precipitation may help to distinguish Cumulonimbus from Nimbostratus. If the precipitation is of the showery type, or if it is accompanied by Lightning, Thunder or Hail, the cloud is by convention Cumulonimbus.

(b) Cumulus

Certain Cumulonimbus clouds appear nearly identical with large, well-developed Cumulus. The cloud should be called Cumulonimbus as soon as at least a part of its upper portion loses the sharpness of its outlines or presents a fibrous or striated texture. If it is not possible to decide on the basis of the above criteria whether a cloud is a Cumulonimbus or Cumulus, it should by convention, be called Cumulonimbus if it is accompanied by Lightning, Thunder or Hail.

Cumulus

Detached clouds, generally dense and with sharp outlines, developing vertically in the form of rising mounds, domes or towers, of which the bulging upper part often resembles a cauliflower. The sunlit parts of these clouds are mostly brilliant white; their base is relatively dark and nearly horizontal. Sometimes Cumulus is ragged.

Main differences between Cumulus and similar clouds of other genera

(a) Altocumulus and Stratocumulus

Small Cumulus clouds may be so numerous and crowded that they resemble a layer of Stratocumulus or Altocumulus, especially when observed near the horizon. The clouds should be identified as Cumulus so long as their tops remain dome-shaped, and their bases are not merged.

(b) Altostratus and Nimbostratus

When a very large precipitating Cumulus cloud is directly above the observer, it may be confused with Altostratus or Nimbostratus. The character of the precipitation may help in distinguishing Cumulus from the latter clouds; if the precipitation is of the showery type, the cloud is Cumulus.

(c) Cumulonimbus

Since Cumulonimbus generally results from the development and transformation of Cumulus, it is sometimes difficult to distinguish Cumulus with a great vertical extent from Cumulonimbus. The cloud should be named Cumulus as long as the sprouting upper parts are everywhere sharply defined, and no fibrous or striated texture is apparent. If it is not possible to decide on the basis of other criteria whether a cloud is to be named Cumulus or Cumulonimbus, it should by convention be called Cumulus if it is not accompanied by Lightning, Thunder or Hail.

(d) Ragged Stratus

Ragged Cumulus is distinguished from ragged Stratus by its generally greater vertical extent and its usually whiter and less transparent appearance. Ragged Cumulus, furthermore, sometimes has rounded or dome-shaped tops, which are always lacking in ragged Stratus.

Stratocumulus

Grey or whitish, or both grey and whitish, patch, sheet or layer of cloud which almost always has dark parts, composed of tessellations, rounded masses, rolls, etc., which are non-fibrous (except for Virga*) and which may or may not be merged; most of the regularly arranged small elements have an apparent width of more than five degrees.

*Vertical or inclined trails of precipitation (fall streaks) attached to the under surface of a cloud, which do not reach the earth's surface.

Main differences between stratocumulus and similar clouds of other genera

(a) Cirrostratus

Stratocumulus may, in extremely cold weather, produce abundant Virga of ice crystals, sometimes accompanied by a Halo; it is then nevertheless distinguishable from Cirrostratus by the fact that it still shows some evidence of the presence of rounded masses, rolls, etc. Furthermore, the opacity of Stratocumulus is greater than that of Cirrostratus.

(b) Altocumulus

Stratocumulus may sometimes he confused with Altocumulus having dark parts. If most of the regularly arranged elements, when observed at an angle of more than 30 degrees above the horizon, have an apparent width of more than five degrees, the cloud is Stratocumulus.

(c) Altostratus, Nimbostratus and Stratus

The differentiation of Stratocumulus from Altostratus, Nimbostratus and Stratus is based on the fact that Stratocumulus shows evidence of the presence of elements, merged or separate. Furthermore, in contrast with Altostratus which often has a fibrous appearance, Stratocumulus always appears non-fibrous, except at extremely low temperatures. In addition to the above criteria, the character of the precipitation and the nature of its particles sometimes provide a clue to the identity of the cloud; any precipitation from Stratocumulus is always of weak intensity.

(d) Cumulus

Stratocumulus differs from Cumulus in that its elements usually occur in groups or patches and generally have flat tops; if, however, Stratocumulus tops are in the form of domes, they rise, unlike those of Cumulus, from merged bases.

Stratus

Generally grey cloud layer with a fairly uniform base, which may give Drizzle, Ice prisms or Snow grains. When the sun is visible through the cloud, its outline is clearly discernible. Stratus does not produce Halo phenomena except, possibly, at very low temperatures. Sometimes Stratus appears in the form of ragged patches.

Main differences between Stratus and similar clouds of other genera

(a) Cirrus

Occasionally, owing to the wind, Stratus locally assumes the form of coarse fibres which differ from those constituting Cirrus in that they are much less white (except towards the sun), not so diffuse, and usually change their shape rapidly.

(b) Cirrostratus

A thin Stratus layer may be confused with Cirrostratus. Stratus, however, is not so completely white except towards the sun; furthermore, coronae may be observed on Stratus.

(c) Altostratus

Stratus is distinguished from Altostratus by the fact that it does not blur the outline of the sun (no ground glass effect).

(d) Nimbostratus

A thick Stratus layer may be confused with Nimbostratus. The following criteria serve to distinguish between these two cloud genera:

(1) In general, Stratus has a more clearly defined and more uniform base than Nimbostratus. Moreover, Stratus has a "dry" appearance, which contrasts fairly strongly with the "wet" appearance of Nimbostratus.

(2) A relatively thin layer of Stratus allows the outline of the sun or moon to he clearly visible at least through its thinnest parts; Nimbostratus masks the luminary throughout.

(3) When the cloud under observation is accompanied by precipitation, it is fairly easy to distinguish Stratus from Nimbostratus
if it is borne in mind that Stratus can produce only weak falls of Drizzle, Ice prisms or Snow grains, whereas Nimbostratus nearly always produces rain, snow or ice pellets. A difficulty arises when precipitation falling from a higher cloud passes through the layer of Stratus. In this case, a dark and uniform layer of Stratus closely resembles a Nimbostratus and may very easily be confused with it.

(4) Stratus is more likely to occur during a calm or with a light wind than with a strong wind, whereas Nimbostratus is usually associated with moderate or strong winds. However, this criterion alone should not be used as a basis for distinction.

(5) The occurrence of a thick Stratus layer is not usually preceded by the existence of other clouds in the low and middle etages. Nimbostratus, on the other hand, nearly always succeeds other clouds, usually of the middle etage, or develops from a pre- existing cloud.

(e) Stratocumulus

Stratus is distinguished from Stratocumulus by the fact that it shows no evidence of the presence of elements, merged or separate.

(f) Cumulus

Stratus in ragged shreds is distinguished from ragged Cumulus in that it is less white and less dense; Stratus also has a smaller vertical extent.

Making the observations

The aspect of the sky is continually changing and the cloud formations in evidence at one particular time may not be typical, that is to say they may not be easily recognizable from the standard descriptions. If, however, the observer watches the sky over a period of time he will often find that doubtful cloud forms may be referred to a previous state of development that was typical. Hence the first rule in cloud observing watch the sky as often as possible and not merely at the time of observation.